

PATENT**REMARKS**

Claims 1-20 are currently pending in this application. Claims 1, 3, 17 and 18 have been amended. No new matter has been added by these amendments. Applicants have carefully reviewed the Office Action and respectfully request reconsideration of the claims in view of the remarks presented below.

Request for Information

Applicants have been asked to provide a definition of T-wave, including when a T-wave ends. A T-wave is the portion of an electrocardiogram (ECG) representing repolarization of the ventricular myocardium. It is the portion of the ECG following the ST-segment. Regarding the end of the T-wave, Applicants do not dispute the Examiner's definition, *i.e.*, that the end of repolarization (T-wave) is represented by the point where the T-wave of the ECG returns to baseline or the isoelectric line.

Applicants have also been asked to comment on whether the detection of ischemia involves some T-wave energy and thus requires some T-wave detection. One possible post T-wave segment identification technique, as described in the specification beginning at page 19, line 19, is based on R-wave detection, thus detection of a T-wave is not necessary. Regarding the use of some T-wave energy in the ischemia detection process, both the start and end of the post T-wave segment may be used to calculate an energy value for ischemia detection purposes. See the equation on page 22 of the specification. The start and end of the post T-wave segment may be calculated using the interval between two consecutive R waves, the respective times of the R waves and integers. See the equations on pages 19 and 20 of the specification. Depending on the integers used, it is possible that a portion of a T-wave may be included in the segment and thus included in the energy calculation. It, however, is not required that some energy of a T-wave be used to detect ischemia.

PATENT**Claim Rejections Under 35 U.S.C. §102**

Claims 1, 2, 13, 17 and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,370,423 (Guerrero).

Independent claims 1, 17 and 18 relate to methods and systems for detecting cardiac ischemia that involves the derivation of energy values for segments or portions of cardiac signals that lie between the region of a cardiac cycle related to a ventricular repolarization and the region related to the first ventricular depolarization that follows the ventricular repolarization.

Guerrero discloses the use of a TP segment as an isoelectric reference line, i.e., the flat line on an ECG indicating the period of time when there is no electrical activity. See column 8, lines 17-19. Because Guerrero considers the TP segment to be an isoelectric reference line, corresponding to no electrical activity and no voltage, Guerrero cannot be reasonably interpreted as disclosing the derivation of TP segment energy values for detecting cardiac ischemia. In view of the foregoing, Applicants submit that Guerrero fails to disclose the derivation of energy values for segments or portions of cardiac signals that lie between the region of a cardiac cycle related to a ventricular repolarization and the region related to the first ventricular depolarization that follows the ventricular repolarization, as recited in independent claims 1, 17 and 18. Accordingly, Applicants request reconsideration of the §102 rejections of these claims and their respective dependent claims.

Claim Rejections Under 35 U.S.C. §103

Claims 14 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Guerrero in view of U.S. Patent No. 6,272,379 (Fischell).

In view of the foregoing analysis of independent claim 1 in view of Guerrero, Applicants believe that the rejections under §103 are rendered moot as each of dependent claims 14 and 15 depends from allowable independent claim 1.

PATENT**Allowable Subject Matter**


Claims 16, 19 and 20 were allowed. Claims 3-12 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claim 3 has been rewritten in independent form to include the elements and features recited in claim 1. Claim 3 is a base claim for each of dependent claims 4-12; thus claims 3-12 are believed to be in condition for allowance.

CONCLUSION

Applicants have made an earnest and bona fide effort to clarify the issues before the Examiner and to place this case in condition for allowance. Therefore, reconsideration and allowance of Applicants' claims 1-20 are believed to be in order.

Respectfully submitted,

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Date



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Page 10 of 10

Docket No. A03P1031